

Clinical Interview II

The participant in this interview will be referred to as Sam. In conducting my initial clinical interview, I was not sure what to expect. I wanted to be careful to not give away too much information, because that would not allow for me to see exactly what Sam knew. I also knew I needed to be cautious to not teach her the material and the process of how to factor with the Algeblocks®. Prior to conducting the initial interview, I created a detailed list of questions I would ask that could help me in trying to clarify statements in different ways, but not give away new information that might lead her along too much.

I believe that my initial interview went fairly well. Sam knew some of the information, such as how to find the area of a rectangle, while she struggled significantly on other aspects, such as factoring a quadratic expression. I learned that Sam didn't remember what factoring was, or how to factor. These observations validated my beliefs that Sam was not a necessarily strong math student and therefore a great candidate for my interview. While Sam may have been taught how to factor in the past, she must not have ever gained a deep conceptual understanding of what factoring was. Through the course of the interview, it became apparent that Sam had only learned the procedure of how to factor and not a conceptual foundation for what factoring is. Her knowledge of how to factor quadratic equations may have remained with her until she was tested on factoring, but it was not with her now, five years after she had initially learned the topic. Since Sam never had a conceptual understanding to tie together with her procedural knowledge, she probably did not ever properly learn the concept as a whole; therefore she did not ever transfer it into her long term memory. Following my outline of acceptable questions to

ask, I explained to Sam what the different Algeblocks® represented and how they could be used in our situation. I felt that once I made it clear to her that we would use an area model representation to help us factor with the Algeblocks®, that she would then have to figure out on her own what that meant. With that amount of guidance from myself, Sam was able to make the blocks form a rectangle, after that however; she didn't know what to do. After seven minutes of her not making any further progress on the task, we decided that was all that could be done for now. She claimed that she had no idea what to do, or where to go from there. I believe that Sam is a very bright student who just needed a bit more guidance on this topic. She was very eager to have me teach her, though I told her we would just have to wait a few weeks so she could try again once I made some modifications. Once the initial interview was complete, I took a moment to realize how much I had wanted to simply tell Sam what to do. I realized that each time I had taught another person something I had always told the individual what to do and why to do it, instead of cleverly guiding the individual along to figure out the answers to their questions on their own. In reflecting on how the initial interview went, I can see that a better understanding of the area model with the Algeblocks® would be necessary, as well as not being 'fearful' of variables and numbers being together. I felt that Sam was fine with the basic area figures, eg. 10×5 , but when the quadratic expressions were brought into the picture, she was less comfortable. I believe that modifications can be made to take into consideration the areas Sam is weak in; however, this would most likely result in the second clinical interview not covering as much information since I will be spending time covering pre-requisite topics, if you will.

In reviewing the results from the initial clinical interview, I chose to make some modifications both in my line of questioning as well as in my worksheet. I needed to be sure that Sam had a concrete understanding of how the Algeblocks® worked. I also needed to address Sam's insecurity about both numbers and variables being forms of measurement. In an attempt to address a smaller amount of material, at a deeper level for the second interview, I planned to mainly cover factoring quadratic expression with only positive coefficients, and if time permitted, I would attempt to cover factoring a quadratic expression with a negative coefficient. However, this would incorporate a new aspect of the Algeblocks® which may require more time than is provided. I altered the beginning of the worksheet to help Sam think more about the simplest idea of area. I had her create her own area problem and explicitly state its dimensions and how the dimensions relate to the total area. This way she would have a better foundation of the core concept she would be using when factoring. I then wanted Sam to think about other ways we are able to measure things, besides just using numbers. This could include, but is not limited to, the size of a human hand, how they measure horses, or car lengths, or more abstract ways, such as a variable that could be used to represent a certain length. Just like an inch or a specific car does not change in size, the variable, x in this case, does not change in size and will help us represent dimensions. Once I felt that Sam has grasped a significant understanding of area and how it can be manipulated I would then introduce the Algeblocks® and what each block represents. I would then explain that we are able to use the information we know about area to help us with another type of area problem, only this time we are going to work backwards. We will be given our total area in the beginning and will then have to figure out what the dimensions are. I believe that

these modifications will help clarify any confusion and help guide Sam along her path of further learning.

Sam had improvements from the first clinical interview to the second interview. In the initial interview we didn't get past the first question on the worksheet, while in the second worksheet we were able to get much further. While in the initial interview I simply mentioned that area will be helpful in this task, this time I spent half the interview on it. This proved very successful and in the end allowed for her understanding of factoring by way of an area representation model with the Algeblocks®. It appears that having Sam create her own area picture and write down her knowledge of what area is was a vital component to her success. In taking her knowledge and having her formulate it into words which she then wrote down on the paper, as well as formulating a model to visually display her words allowed for her thinking to be shown in various representations. This allowed for both her and I to understand what Sam knew. In the first interview Sam's math vocabulary was very basic, calling the dimensions of the rectangle "side one and side two", in the second interview she was able to use the terms "length and width" from her folder of knowledge about area. When it came time for Sam to use the Algeblocks® she felt more comfortable with them and better understood that it was okay that they didn't all have a number assigned to them. She continued to refer back to the basic area model that she had created at the beginning of the interview. After analyzing the results of the second interview, it appears as if Sam had the same amount of knowledge the whole time, she just needed help accessing it. She didn't know how to access it during the initial interview, but in the second interview she had better crafted guidance to help her in using knowledge she already had.